A Critical Study Of Contribution Of PPP In the growth Of Infrastructure Sector In India

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ABSTRACT:

Infrastructure sector is a key driver for the Indian economy. The sector is highly responsible for propelling India's overall development and enjoys intense focus from Government for initiating policies that would ensure time-bound creation of world class infrastructure in the country. Infrastructure bottleneck has been a serious concern in India in its way of robust pace of economic progression. While many advanced economies and fiscal constrained developing countries have developed their physical infrastructure successfully either through private participation or through public-private partnership (PPP) model, in India In order to remove the deficiencies and upgrade the road network to world-class standards, the governments at the Union and state levels have initiated public-private partnership (PPP) models that have been used in procuring the National Highways projects include Build Operate-Transfer (BOT) (Toll) and BOT (Annuity) models. Ministery of Road Transport and Highways, and Shipping, has announced the government's target of Rs 25 trillion (US$ 376.53 billion) investment in infrastructure over a period of three years, which will include Rs 8 trillion (US$ 120.49 billion) for developing 27 industrial clusters and an additional Rs 5 trillion (US$ 75.30 billion) for road, railway and port connectivity projects.

Infrastructure sector includes power, bridges, dams, roads and urban infrastructure development. In August 2016, India jumped 19 places in World Bank's Logistics Performance Index (LPI) 2016, to rank 35th amongst 160 countries.

The private participation in the process of infrastructure development has received lackluster response. While private telecom services is a success story in India, the PPP constitutes a miniscule share in overall infrastructure building despite initiation of various policy adjustments and sector-specific reform programmes.This paper focuses on the various approaches that have been used for financing of PPP road projects in India This in turn influences the selection of the type of PPP model that is considered most appropriate for the concerned project.

KEYWORDS: BOT, infrastructure, fiscal Constraints, Annuity ,PPP

1. INTRODUCTION

PPPs broadly refer to long term, contractual partnerships between the public and private sector agencies, specially targeted towards financing, designing, implementing, and operating infrastructure facilities and services that were traditionally provided by the Government and/or its agencies. These collaborative ventures are built around the expertise and capacity of the project partners and are based on a contractual agreement, which ensures appropriate and mutually agreed allocation of resources, risks, and returns. This approach of developing and operating public utilities and infrastructure by the private sector under terms and conditions agreeable to both the government and the private sector is called PPP.

The network of roadways of a country is as essential as the arterial system to the human body. Road is one of the most promising and potent means for rapid industrialization and agricultural advancement. It plays an important role in the economy of the country and is particularly suitable for short and medium distance. It provides the basic infrastructure for bringing the majority of the people who are living in far off villages into the mainstream of life by connecting them with the rest of the country.

With the spread of green revolution in the country and industrial growth and opening up of new areas, the road infrastructutre has assumed greater importance as the growing demands for supply of inputs like fertilizers, seeds etc. as well as the transport of agricultural produce to markets have to be met largely by road . The quality of the roads is inadequate and cannot meet the needs of the efficient and fast moving transportation. National highways which are the prime arterial routes span about 58,112 km throughout the country and cater to about 45% of the total road transport demand. The National Highway Development Programme (NHDP) which was launched in 1999 is to give a boost to the economic development of the country. The programme is being implemented by National Highway Authority of India (NHAI). Golden Quadrilateral (GQ) comprising the national highways connecting the four metro cities Delhi, Mumbai, Chennai, and Kolkata and has the total length 5,846 km. Roads are significant for the development of the rural areas - home to almost 70 percent of India's population. Although the rural road network is extensive, some 33 percent of India’s villages do not have access to all-weather roads and remain cut off during the monsoon season. The problem is more acute in India's northern and northeastern states which are poorly linked to the country’s major economic centers. Central , State government and municipal corporations of a country are entrusted with responsibility of construction of roads as per requirement but these governments in any developing country are faced with chronic shortage of fund to create roads and therefore they enter into long term agreement with various private sector agencies to finance ,construct and operate capital intensive infrastructure projects. This model where government participates in collaboration of private players of the markets is called as public private partnership model.

This model has been successfully implemented by Central as well as State governments to create infrastructure.

Types of PPP

Following are given various types of Contract under PPP Models

i). SERVICE CONTRACT

- Under a service contract, the Government (public authority) hires a private company or entity to carry out one or more specified tasks or services for a period, typically 1–3 years.
- The public authority remains the primary provider of the infrastructure service and contracts out only portions of its operation to the private partner.
- The private partner must perform the service at the agreed cost and must typically meet performance standards set by the public sector.
- The Government pays the private partner a predetermined fee for the service, which may be a one time fee, based on unit cost, or some other basis.

ii). MANAGEMENT CONTRACT

- A management contract expands the services to be contracted out to include some or all of the management and operation of the public service (i.e., utility, hospital, port authority, etc.).
- Although ultimate obligation for service provision remains in the public sector, daily management control and authority is assigned to the private partner or contractor. In most cases, the private partner provides working capital but no financing for investment.

- The private contractor is paid a predetermined rate for labour and other anticipated operating costs.
- Management contract variants include supply and service contract, maintenance management and operational management.

iii). LEASE CONTRACT

- Under a lease contract, the private partner is responsible for the service in its entirety and undertakes obligations relating to quality and service standards.
- Except for new and replacement investments, which remain the responsibility of the public authority, the operator provides the service at his expense and risk.
- The duration of the leasing contract is typically for 10 years and may be renewed for up to 20 years.
- Responsibility for service provision is transferred from the public sector to the private sector and the financial risk for operation and maintenance is borne entirely by the private sector operator.
- In particular, the operator is responsible for losses and for unpaid consumers' debts.
- Leases do not involve any sale of assets to the private sector.

iv). CONCESSION

- A concession makes the private sector operator (concessionaire) responsible for the full delivery of services in a specified area, including operation, maintenance, collection, management, and construction and rehabilitation of the system.
- Importantly, the operator is now responsible for all capital investment. Although the private sector operator is responsible for providing the assets, such assets are publicly owned even during the concession period.
- The public sector is responsible for establishing performance standards and ensuring that the concessionaire meets them. In essence, the public sector’s role shifts from being the service provider to regulating the price and quality of service.
- The concessionaire collects the tariff directly from the system users.
- The tariff is typically established by the concession contract, which also includes provisions on how it may be changed over time.
- In some cases, the government may choose to provide financing support to help the concessionaire fund its capital expenditures.
- The concessionaire is responsible for any capital investments required to build, upgrade, or expand the system, and for financing those investments out of its resources and from the tariffs paid by the system users.

- A concession contract is typically valid for 25–30 years so that the operator has sufficient time to recover the capital invested and earn an appropriate return over the life of the concession.
- Government may contribute to the capital investment cost by way of subsidy (Viability Gap Funding - VGF) to enhance commercial viability of the concession.
- The concessions are effective contracts to provide investment for creation of new facilities or rehabilitation facilities.

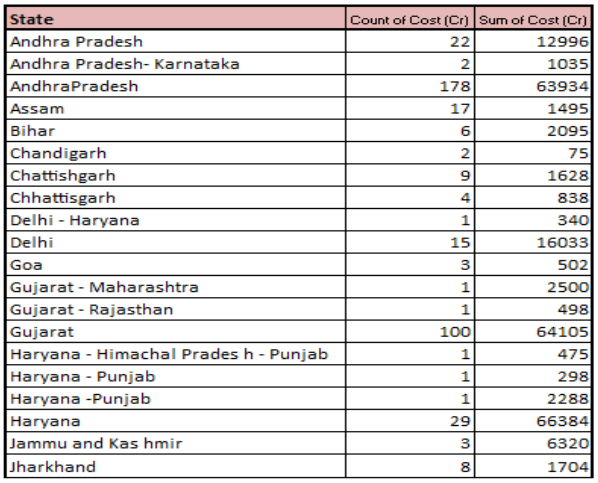
v). BUILD OPERATE TRANSFER

- BOT and similar arrangements are a kind of specialized concession in which a private firm or consortium finances and develops a new infrastructure project or a major component according to performance standards set by the government.

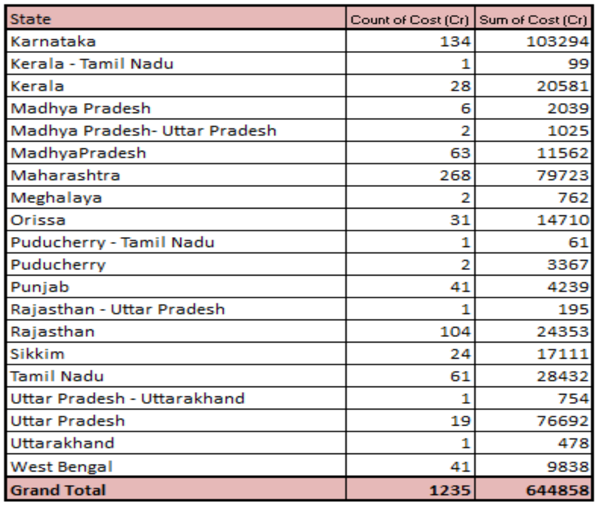
- Under BOTs, the private partner provides the capital required to Build the new facility, Operate & Maintain (O&M) for the contract period and then return the facility to Government as per agreed terms.
- Importantly, the private operator now owns the assets for a period set by contract—sufficient to allow the developer time to recover investment costs through user charges.

The main characteristic of BOT and similar arrangements are given below:-

- **DESIGN BUILD :** Where Private sector designs and constructs at a fixed price and transfers the facility.
- **BUILD TRANSFER OPERATE :** Where Private sector designs and builds the facility. The transfer to the public owner takes place at the conclusion of construction. Concessionaire is given the right to operate and get the return on investment.
- **BUILD OWN OPERATE :** A contractual arrangement whereby a Developer is authorized to finance, construct, own, operate and maintain an Infrastructure or Development facility from which the Developer is allowed to recover his total investment by collecting user levies from facility users. Under this Project, the Developer owns the assets of the facility and may choose to assign its operation and maintenance to a facility operator. The Transfer of the facility to the Government, Government Agency or the Local Authority is not envisaged in this structure; however, the Government, may terminate its obligations after specified time period.

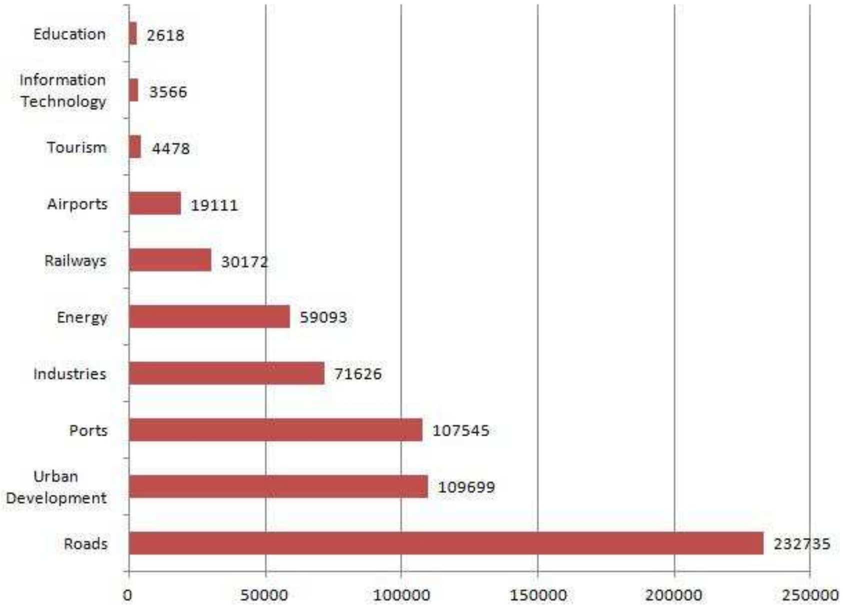


State	Count of Cost (Cr)	Sum of Cost (Cr)
Andhra Pradesh	22	12996
Andhra Pradesh- Karnataka	2	1035
AndhraPradesh	178	63934
Assam	17	1495
Bihar	6	2095
Chandigarh	2	75
Chattishgarh	9	1628
Chhattisgarh	4	838
Delhi - Haryana	1	340
Delhi	15	16033
Goa	3	502
Gujarat - Maharashtra	1	2500
Gujarat - Rajasthan	1	498
Gujarat	100	64105
Haryana - Himachal Prades h - Punjab	1	475
Haryana - Punjab	1	298
Haryana -Punjab	1	2288
Haryana	29	66384
Jammu and Kas hmir	3	6320
Jharkhand	8	1704

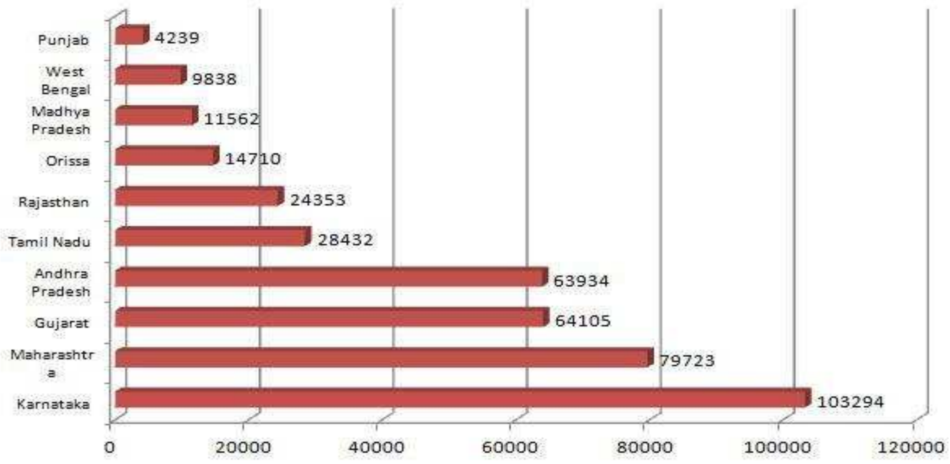


State	Count of Cost (Cr)	Sum of Cost (Cr)
Karnataka	134	103294
Kerala - Tamil Nadu	1	99
Kerala	28	20581
Madhya Pradesh	6	2039
Madhya Pradesh- Uttar Pradesh	2	1025
MadhyaPradesh	63	11562
Maharashtra	268	79723
Meghalaya	2	762
Orissa	31	14710
Puducherry - Tamil Nadu	1	61
Puducherry	2	3367
Punjab	41	4239
Rajasthan - Uttar Pradesh	1	195
Rajasthan	104	24353
Sikkim	24	17111
Tamil Nadu	61	28432
Uttar Pradesh - Uttarakhand	1	754
Uttar Pradesh	19	76692
Uttarakhand	1	478
West Bengal	41	9838
Grand Total	**1235**	**644858**

- **DESIGN BUILD OPERATE :** Where the ownership is involved in private hands and a single contract is let out for design construction and operation of the infrastructure project.
- **DESIGN BUILD FINANCE OPERATE:** With the design–build–finance–operate (DBFO) approach, the responsibilities for designing, building, financing, and operating & maintaining, are bundled together and transferred to private sector partners. DBFO arrangements vary greatly in terms of the degree of financial responsibility that is transferred to the private partner.



- **BUILD OPERATE TRANSFER** : Annuity/Shadow User Charge : In this BOT Arrangement, private partner does not collect any charges from the users. His return on total investment is paid to him by public authority through annual payments (annuity) for which he bids. Other option is that the private developer gets paid based on the usage of the created facility.



- **JOINT VENTURE**

- Joint ventures are alternatives to full privatization in which the infrastructure is co-owned and operated by the public sector and private operators.
- Under a joint venture, the public and private sector partners can either form a new company (SPV) or assume joint ownership of an existing company through a sale of shares to one or several private investors.
- A key requirement of this structure is good corporate governance, in particular the ability of the company to maintain independence from the government, because the government is both part owner and regulator.
- From its position as shareholder, however, the government has an interest in the profitability and sustainability of the company and can work to smoothen political hurdles.

2. REVIEW OF LITERATURE:

PPPs have been a popular means to perform long-term public investments. Hodge and Greve (2007) describe PPPs as a mega credit card for governments. The literature on PPPs covers different research areas. Hodge (2010) points to the multidisciplinary character of PPPs as one of the major challenges. Economists study the societal impact of PPPs and will assess the social marginal cost. Engineers will be involved in the feasibility studies and project management scholars will ensure an adequate planning of the project. Due to the often high dependency on the capital market for e.g. financial risk management, raising equity capital and debt finance, financial institutions and finance practitioners will also be involved. In this study, only the planner’s point of view is applied. Pro and contra arguments have been formulated. The most cited advantages are substantial public benefits, cost savings and the risk sharing opportunities (Bloomfield,

2006). Of course, the appraisal often depends on a country-specific infrastructure. Some governments are not yet prepared to engage in PPP projects and other legislations will never be suitable for PPP contracting. The most popular criticism is that it is more expensive to raise capital from the market for the private company than for the public sector. Consequently, in order to create value for money, the cost savings and efficiency gains should outweigh the higher cost of capital. Other oft en encountered disadvantages are based on the complexity of the contract and the inherent dangers (e.g. lock-in, moral hazard and adverse selection) (Zou and Fang, 2008).Case studies of good and bad PPP experiences have been performed. Indeed, as PPP contracting might sound nice, experiences were not always prospering and sometimes even disastrous. The next section investigates one of the most vital process steps: the tendering
phase and the preparation of the project proposal..

3. OBJECTIVES OF THE STUDY:-

i) To Study the status of road infrastructure under PPP in India
ii) To Study the Role of PPP Model in development of road infrastructure in India
iii) To study the sector wise PPP Projects in India
iv) To study various types of arrangement under PPP models in India

4. HYPOTHESIS

H0: Public Private partnership has been successful in the growth and development of road network in India

H0: PPP Model is more efficient as compared to public sector model in developing road infrastructure in India.

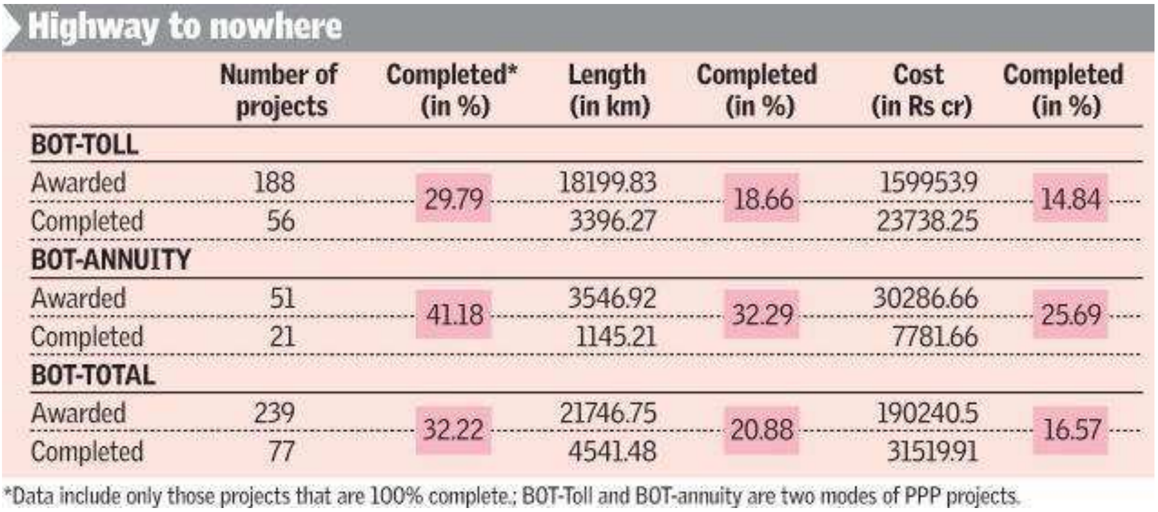
5. Scope: This study is confined to Road infrastructure in India excluding other modes of transportation due to considerable opportunities for future potentiality in this sector.

6. RESEARCH METHODOLOGY:

The study is based on secondary data collected from Reputed Magazine, Newspapers. Websites of Ministry of surface transport, various other government institutions & agencies involved in the construction of infrastructure.

7. STATUS OF ROAD IN INDIA

India has a road network of over 4,689,842 kilometers (2,914,133 miles) in 2013, the second largest road network in the world. At 0.66 km of roads per square kilometer of land, the quantitative density of India's road network is similar to that of the United States (0.65) and far higher than that of China (0.16) or Brazil (0.20). However, qualitatively India's roads are a mix of modern highways and narrow, unpaved roads, and are being improved. As of 2011, 54 percent – about 2.53 million kilometers – of Indian roads were paved. Adjusted for its large population, India has less than 3.8 kilometers of roads per 1000 people, including all its paved and unpaved roads. In terms of quality, all season, 4 or more lane highways, India has less than 0.07 kilometers of highways per 1000 people, as of 2010. These are some of the lowest road and highway densities in the world. For context, United States has 21 kilometers of roads per 1000 people, while France about 15 kilometers per 1000 people – predominantly paved and high quality in both cases. In terms of all season, 4 or more lane highways, developed countries such as United States and France have a highway density per 1000 people that is over 15 times as India.



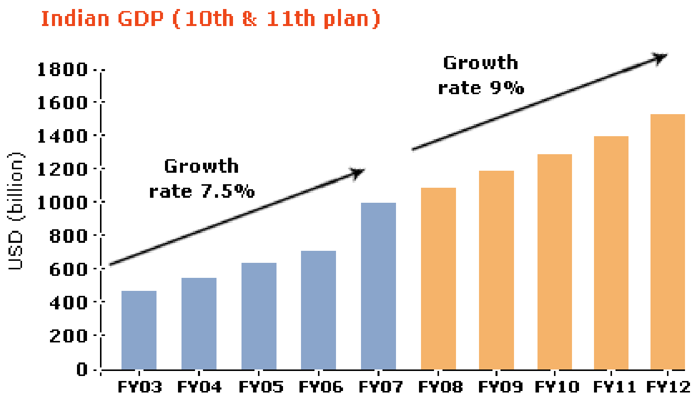
Highway to nowhere

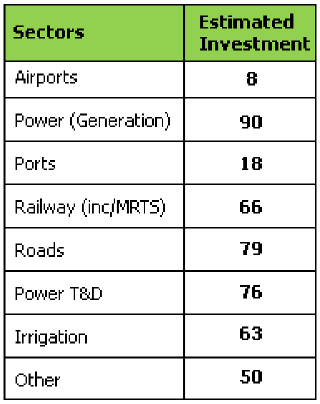
	Number of projects	Completed* (in %)	Length (in km)	Completed (in %)	Cost (in Rs cr)	Completed (in %)
BOT-TOLL						
Awarded	188	29.79	18199.83	18.66	159953.9	14.84
Completed	56		3396.27		23738.25	
BOT-ANNUITY						
Awarded	51	41.18	3546.92	32.29	30286.66	25.69
Completed	21		1145.21		7781.66	
BOT-TOTAL						
Awarded	239	32.22	21746.75	20.88	190240.5	16.57
Completed	77		4541.48		31519.91	

*Data include only those projects that are 100% complete.; BOT-Toll and BOT-annuity are two modes of PPP projects.

India in her past did not allocate enough resources to build or maintain its road network. This has changed since 1995, with major efforts currently underway to modernize the country's road infrastructure. As of April 2014, India had completed and placed in use over 22,400 kilometers of recently built 4 or 6-lane highways connecting many of its major manufacturing centres, commercial and cultural centres. The rate of new highway construction across India accelerated after 1999, but has slowed in recent years. Policy delays and regulatory blocks reduced the rate of highway construction awards to just 500 kilometers of new road projects in 2013. Private builders and highway operators are also implementing major projects - for example, the Yamuna Expressway between Delhi and Agra was completed ahead of schedule and within budget, while the KMP Expressway started in 2006 is far behind schedule, over budget and incomplete. According to 2009 estimates by Goldman Sachs, India will need to invest US$1.7 trillion on infrastructure projects before 2020 to meet its economic needs, a part of which would be in upgrading India's road network. The Government of India is attempting to promote foreign investment in road projects. Foreign participation in Indian road network construction has attracted 45 international contractors and 40 design/engineering consultants, with Malaysia, South Korea, United Kingdom and United States being the largest player. India's roads are congested and of poor quality. Lane capacity is low - most national highways are two lanes or less.

Total Invesment in 11th Five year plan (08-12): USD 514bn.

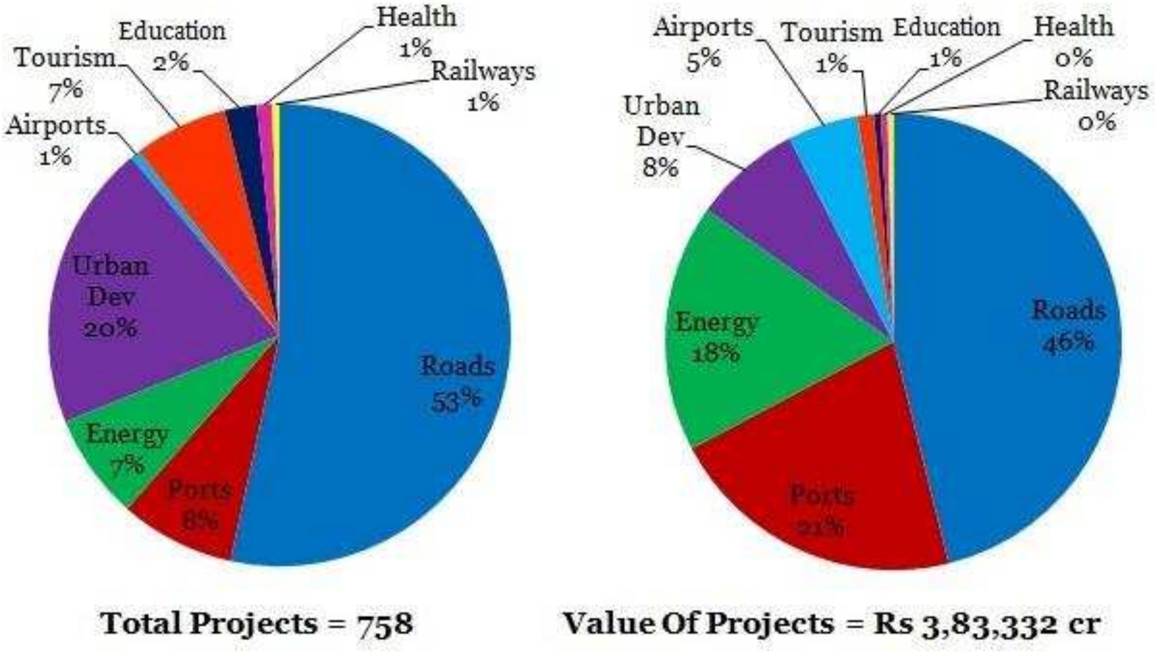




Sectors	Estimated Investment
Airports	8
Power (Generation)	90
Ports	18
Railway (inc/MRTS)	66
Roads	79
Power T&D	76
Irrigation	63
Other	50

- **Total Investment on infrastructure in 12th Five year plan is 1 Trillion USD.**
- **50% is targeted from Private Sector: USD 500 Bn.**

A quarter of all India's highways are congested. Many roads are of poor quality and road maintenance remains under-funded - only around one-third of maintenance needs are met. This leads to the deterioration of roads and high transport costs for use. Rural areas have poor access The roads in a big way facilitate advancement in the economy of a country and they simultaneously facilitate communication. In the matter of road infrastructure, they are almost equal to the railways which connect other parts of the country through its large railway network system. A well-developed road network is an essential part of a developing economy like India's. Besides facilitating the movement of goods around the country, it directly impacts the quality of life of a country's citizens. It is in the interest of a progressive government to facilitate the rapid development of roads which create access to all parts of the country.



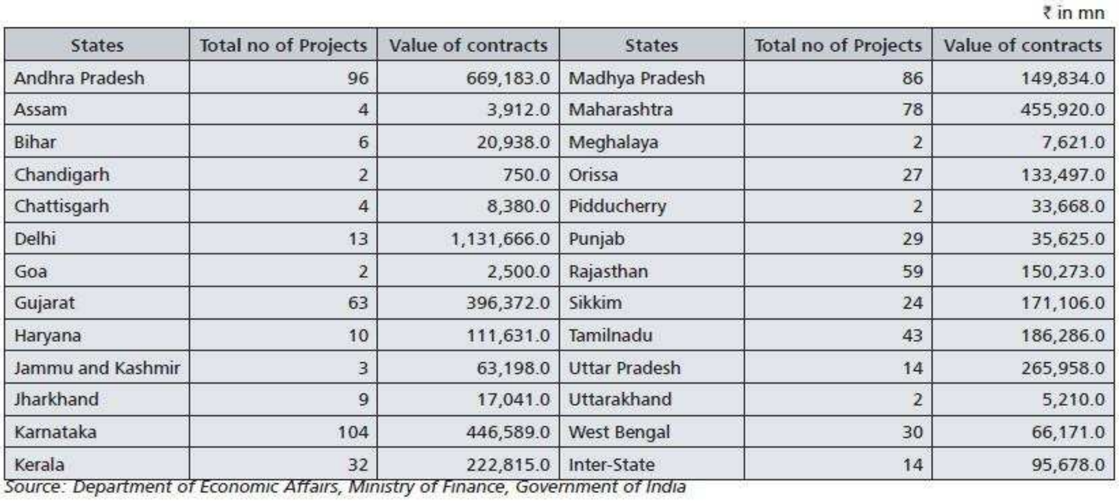
Sector-wise PPP Projects

Total Projects = 758 **Value Of Projects = Rs 3,83,332 cr**

Source: Ministry Of Finance

So far as Sectorwise PPP Projects in term of No of projects are concerned ,Majority (53 %) of them are in Road infrastructure followed by urban development (20%) ,ports(8%) and son on whereas on the basis of value of Projects, maximum investment goes to road infrastructure(46%) followed by ports(21%), energy(18%), Urban Development 8%) ,Airports(5%) and so on.

State level PPP projects status as of July 31 2011:

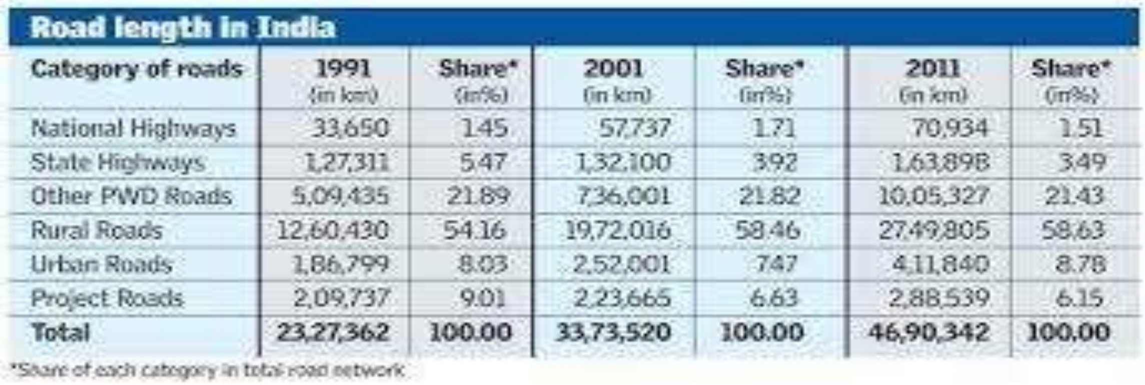


₹ in mn

States	Total no of Projects	Value of contracts	States	Total no of Projects	Value of contracts
Andhra Pradesh	96	669,183.0	Madhya Pradesh	86	149,834.0
Assam	4	3,912.0	Maharashtra	78	455,920.0
Bihar	6	20,938.0	Meghalaya	2	7,621.0
Chandigarh	2	750.0	Orissa	27	133,497.0
Chattisgarh	4	8,380.0	Pidducherry	2	33,668.0
Delhi	13	1,131,666.0	Punjab	29	35,625.0
Goa	2	2,500.0	Rajasthan	59	150,273.0
Gujarat	63	396,372.0	Sikkim	24	171,106.0
Haryana	10	111,631.0	Tamilnadu	43	186,286.0
Jammu and Kashmir	3	63,198.0	Uttar Pradesh	14	265,958.0
Jharkhand	9	17,041.0	Uttarakhand	2	5,210.0
Karnataka	104	446,589.0	West Bengal	30	66,171.0
Kerala	32	222,815.0	Inter-State	14	95,678.0

Source: Department of Economic Affairs, Ministry of Finance, Government of India

From the table it is clear that most of the projects are in Karnatka(104) followed by Andhrapradesh(96) , Madhyapradesh(86, Maharashtra(78) , Gujrat (63), Rajasthan(59) Kerala (32), West Bengal (30),Delhi (13) Haryana(10), Jharkhand (9) etc whetreas in term of value New Delhi with Rs 11,31, leads the states followed by Andhrapradesh (Rs666 669,183 mn)Maharashtra(Rs.455920 Mn) and at number 3 is Karnataka(Rs.446589mn)

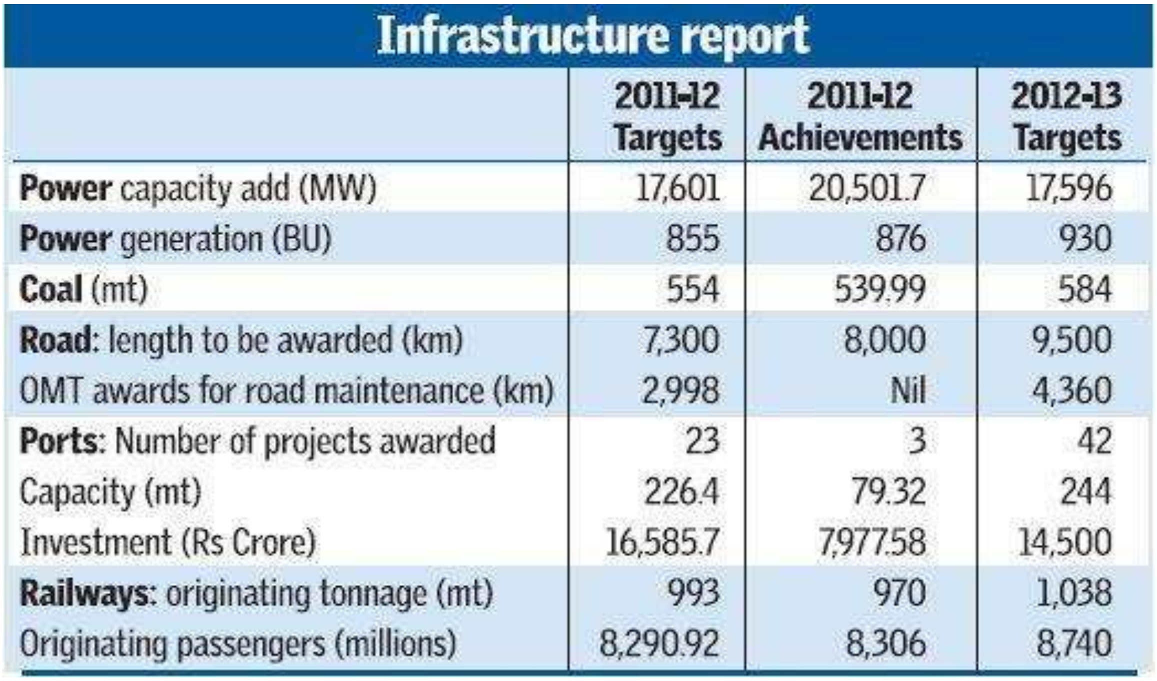


Road length in India

Category of roads	1991 (in km)	Share* (in%)	2001 (in km)	Share* (in%)	2011 (in km)	Share* (in%)
National Highways	33,650	1.45	57,737	1.71	70,934	1.51
State Highways	1,27,311	5.47	1,32,100	3.92	1,63,898	3.49
Other PWD Roads	5,09,435	21.89	7,36,001	21.82	10,05,327	21.43
Rural Roads	12,60,430	54.16	19,72,016	58.46	27,49,805	58.63
Urban Roads	1,86,799	8.03	2,52,001	7.47	4,11,840	8.78
Project Roads	2,09,737	9.01	2,23,665	6.63	2,88,539	6.15
Total	**23,27,362**	**100.00**	**33,73,520**	**100.00**	**46,90,342**	**100.00**

*Share of each category in total road network

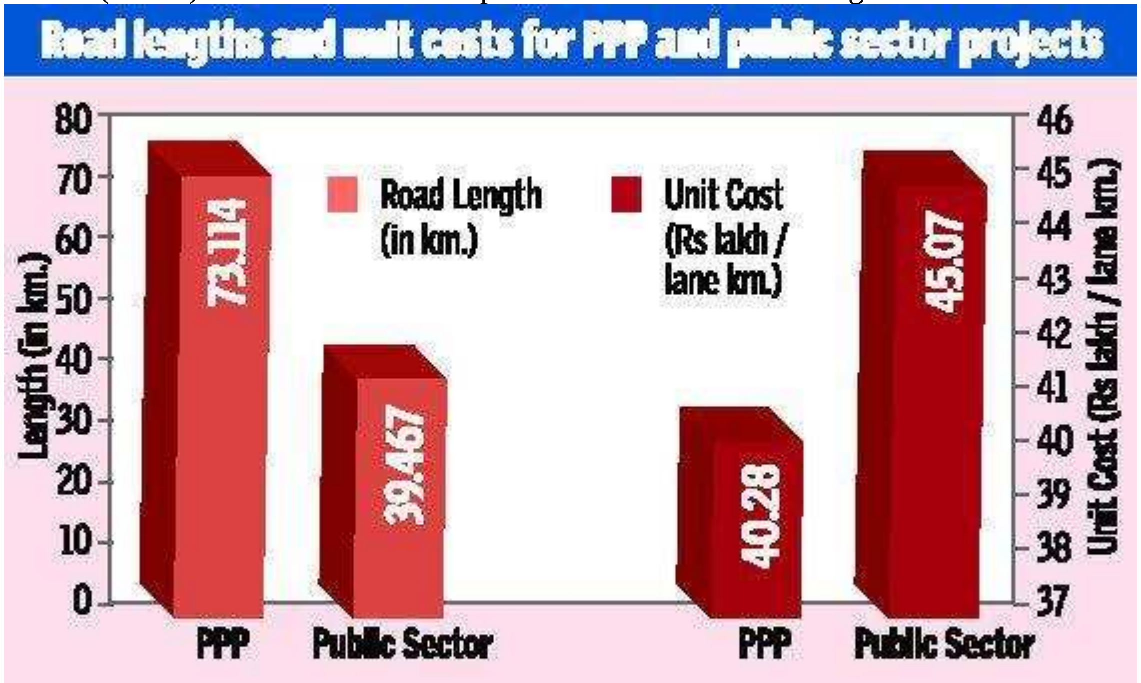
Keeping in mind the importance of the road building projects, it has recently been declared that funding for the projects will be simplified by relaxing the conditions on which banks may grant loans. The Committee of Secretaries has decided that private developers may avail of loans for their projects when they have acquired 80% of the land required for project completion under a PPP. If the project includes a bypass, the length of the bypass may be left out when calculating the percentage of land acquired.



Infrastructure report

	2011-12 Targets	2011-12 Achievements	2012-13 Targets
Power capacity add (MW)	17,601	20,501.7	17,596
Power generation (BU)	855	876	930
Coal (mt)	554	539.99	584
Road: length to be awarded (km)	7,300	8,000	9,500
OMT awards for road maintenance (km)	2,998	Nil	4,360
Ports: Number of projects awarded	23	3	42
Capacity (mt)	226.4	79.32	244
Investment (Rs Crore)	16,585.7	7,977.58	14,500
Railways: originating tonnage (mt)	993	970	1,038
Originating passengers (millions)	8,290.92	8,306	8,740

The banks are assured of the security of the loan as the developers are allowed to collect toll tax from the users once 75% of the project has been completed. This decision has been passed on to the banks through the Department of Financial Services, and to date it has given funding to as many as 30 pending highway projects, most of which had acquired more than 80% land, but had stalled due to lack of funding. This decision has been supported both by the NHAI and by the India Infrastructure Finance Company limited (IIFCL) which reinforced the provision in its board meeting.



Road lengths and unit costs for PPP and public sector projects

This development is expected to be the first of many changes made to strengthen the PPP model and support its implementation in India’s infrastructure sector. For a PPP to be successful, it should be a profitable venture for the private developer, and at the same time enable the government to meet its targets and commitments in the area of public services. The move to facilitate funding to PPPs is a welcome move and is bound to help progress and improvement on India’s roads.

7. CONCLUSION

The status of the PPP in the infrastructure development in India, both in the Central Government schemes as well as State sponsored schemes, is not encouraging. Stable macroeconomic framework, sound regulatory structure, investor friendly policies, sustainable project revenues, transparency and consistency of policies, effective regulation and liberalisation of labour laws, and good corporate governance are the basic requirements, which define the success of the PPP model. The PPP model in the road sector has experienced with enthusiastic response with the introduction of massive NHDP with structured MCA. However, many of the road projects are faced with cost and time overruns on account of prolonging disputes in land acquisition, hurdles in the material movements, law and order problems, etc.This brings to the fore a need for constructive and stable policy environment towards land acquisition for public utilities. The urban infrastructure bottlenecks need to be addressed through a development strategy, which encompasses efficient planning and organisation of the project, balancing the public-private interest.

International experience suggests that the success of PPP projects requires a single objective of better services for the public at a reasonable cost. This is achievable through realistic and reasonable risk transfer while addressing the public concerns. The Indian PPP model should adhere to such objectives and best practices to march forward on the success path. In this pursuit, easy availability of long-term private capital is an essential requirement. Fostering the greenfield investments in the public infrastructure with appropriate user charges, transparent revenue and risk sharing agreements would transform the international capital inflows into productive ventures. Above all, selection of right PPP model for a right project at a right time through realistic planning would go a long way in providing meaningful and hassle free infrastructure development, which ultimately would increase the infrastructure standards and thereby sustain the overall macroeconomic developments of the country.

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